

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

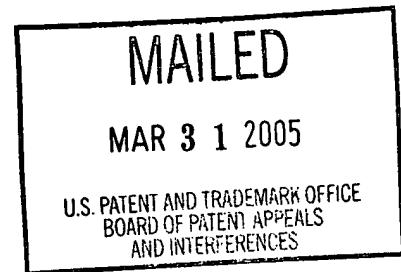
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

**Ex parte CHEN-KUEI CHUNG, CHUN-JUN LIN, and  
CHUNG-CHU CHEN**

Appeal No. 2005-0090  
Application No. 10/057,025

ON BRIEF



Before HAIRSTON, DIXON, and GROSS, **Administrative Patent Judges**.  
**DIXON, Administrative Patent Judge.**

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 11-20, which are all of the claims pending in this application.

We REVERSE.

Appellants' invention relates to an integrated micro-droplet generator. An understanding of the invention can be derived from a reading of exemplary claim 11, which is reproduced below.

11. A thermal bubble inkjet head having a symmetrical off-shooter heater comprising:

- a silicon substrate having a top surface and a bottom surface;
- a first insulating material layer of at least 1000 Å thick on said top surface;
- a funnel-shaped manifold formed in said silicon substrate;
- a symmetrical ring-shaped heater formed on said first insulating material layer on said top surface;
- an interconnect formed of a conductive metal in electrical communication with said ring-shaped heater;
- a second insulating material layer on top of said ring-shaped heater and said first insulating material layer;
- a first photoresist layer of at least 2000 Å thick on top of said second insulating material layer;
- an ink chamber formed in said first photoresist layer in fluid communication with said funnel-shaped manifold;
- a metal seed layer on said first photoresist layer and an inkjet orifice formed in said metal seed layer; and
- a Ni layer on top of said metal seed layer with an aperture formed therein in fluid communication with said inkjet orifice.

The prior art of record relied upon by the examiner in rejecting the appealed claims is as follows:

Abe et al. (Abe)	4,914,562	Apr. 03, 1990
Taub et al. (Taub)	5,308,442	May 03, 1994
Figueroedo et al. (Figueroedo)	6,155,674	Dec. 05, 2000
Hawkins et al. (Hawkins)	6,214,245	Apr. 10, 2001
Ramaswami et al. (Ramaswami)	6,267,471	Jul. 31, 2001

Claims 11-20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ramaswami in view of Abe, Figueredo, Taub, and Hawkins.

Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejections, we make reference to the examiner's answer (mailed Dec. 30, 2003) for the examiner's reasoning in support of the rejections, and to appellants' brief (filed Nov. 12, 2003) for appellants' arguments thereagainst.

## OPINION

In reaching our decision in this appeal, we have given careful consideration to appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by appellants and the examiner. As a consequence of our review, we make the determinations which follow.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. *See In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A *prima facie* case of obviousness is established by presenting evidence that the reference teachings would appear to be

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sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed combination or other modification. **See In re Lintner**, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Furthermore, the conclusion that the claimed subject matter is ***prima facie*** obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. **See In re Fine**, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Rejections based on § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See **In re Warner**, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), **cert. denied**, 389 U.S. 1057 (1968). Our reviewing court has repeatedly cautioned against employing hindsight by using the appellant's disclosure as a blueprint to reconstruct the claimed invention from the isolated teachings of the prior art. **See, e.g., Grain Processing Corp. v. American Maize-Props. Co.**, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988).

When determining obviousness, "the [E]xaminer can satisfy the burden of showing obviousness of the combination 'only by showing some objective teaching in

the prior art or that knowledge generally available to one of ordinary skill in art would lead that individual to combine the relevant teachings of the references.'" **In re Lee**, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002), citing **In re Fritch**, 972 F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992). "Broad conclusory statements regarding the teaching of multiple references, standing alone, are not 'evidence.'" **In re Dembiczak**, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). "Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of material fact." **Dembiczak**, 175 F.3d at 999, 50 USPQ2d at 1617, citing **McElmurry v. Arkansas Power & Light Co.**, 995 F.2d 1576, 1578, 27 USPQ2d 1129, 1131 (Fed. Cir. 1993) .

Further, as pointed out by our reviewing court, we must first determine the scope of the claim. "[T]he name of the game is the claim." **In re Hiniker Co.**, 150 F.3d 1362, 1369, 47 USPQ2d 1523, 1529 (Fed. Cir. 1998). Therefore, we look to the limitations set forth in independent claim 11.

We note that claim 11 recites a specific structure which the examiner admits is not taught by Ramaswami. (Answer at page 4.) The examiner lists six claimed limitations which are not taught by Ramaswami. (Answer at page 4.) The examiner briefly discusses the teachings of each of the additional references, but does not specifically correlate these additional teachings or suggestions to those elements lacking in the teaching of Ramaswami.

The examiner maintains in the answer at pages 6-7 that:

The Appellant's argument that Ramaswami does not teach the funnel shaped manifold is correct. However, Ramaswami is not cited to teach this feature. Simply put, claim 11 is a combination of two basic ink jet print head structures: a substrate having an ink manifold for supplying ink to heater elements and a layered structure that is formed on the substrate and contains the ink ejection chamber and heater elements. Ramaswami is cited to teach the majority of the elements comprising the layered structure, not the specifics of the ink manifold. The specifics of the ink manifold are taught by Figueredo and Taub. With regard to the ink manifold, Ramaswami teaches an "edge feed" type print head (col. 23:16-22). That is, the ink is fed from the sides of the substrate, rather than through an opening formed directly through the substrate (center feed type). Figueredo teaches a print head having a substrate (112) and a layered structure(e.g. Figs. 4 and [sic, no text cited]) similar to the claimed invention and to Ramaswami. Figueredo teaches that this type of print head may use either an "edge feed" type manifold (Fig. 1) or a "center feed" type manifold (Fig. 1A), in order to supply in the [sic, ink] to the heating resistors. Thus, these two ink manifold structures are known equivalents in the ink jet art. Accordingly, one of ordinary skill in the ink jet art would have found it obvious to substitute a "center feed" type manifold for the "edge feed" manifold of Ramaswami, for the purpose of supplying ink in a known alternative manner.

In the Appeal Brief (p. 6), the Appellant argues that Figueredo et al. teaches funnel-shaped ink channels in the barrier layer and thus, the funnel shaped manifold is not formed in the silicon substrate. It is apparent that the Appellant is confused as to which element is the ink manifold. The ink manifold is identified by Ref. No. 116 (see Fig. 1A). The Examiner acknowledges that this ink manifold is not funnel shaped. However, Taub is cited to teach why one of ordinary skill in the ink jet art would provide a funnel-shaped manifold in a print head structure that is similar to the claimed invention, Ramaswami and Figueredo. The Appellant does not provide any arguments as to why Taub does not teach a funnel-shaped ink manifold or as to why Taub can not be combined with the other prior art references.

From our review of the examiner's position, we find no teaching that the funnel shaped manifold would be in the silicon substrate except for in the teachings of Taub. The examiner maintains that Figueredo teaches a center feed with a slot 116 which is in a thin film substrate rather than in a silicon substrate and is not funnel-shaped. Therefore, we do not find a teaching in Ramaswami or Figueredo of a (funnel-shaped) manifold in a silicon substrate. The examiner further maintains that Taub "is cited to teach why one of ordinary skill in the ink jet art would provide a funnel-shaped manifold in a print head structure that is similar to the claimed invention, Ramaswami and Figueredo." (See answer at page 7.) Yet with this combination, we find no motivation to have the manifold in the silicon substrate as claimed. While we do notice that Taub does have the funnel-shaped manifold in the silicon substrate, the examiner has provided no convincing line of reasoning why it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the layered structures of Ramaswami and Figueredo. From our view of the examiner's rejection and the discussion in the response to arguments by the examiner, we find that the examiner opines that the various parts of the claimed invention were known, but the examiner has not established a convincing line of reasoning for the myriad of modifications to the base teachings of Ramaswami to achieve the invention as recited in the language of independent claim 11.

The examiner further maintains that “[t]he appellant [sic] does not provide any arguments as to why Taub does not teach a funnel-shaped ink manifold or as to why Taub can not be combined with the other prior art references.” (See answer at page 7.) We disagree with the examiner position’s and posturing. We find that the examiner has the burden of establishing a *prima facie* case of obviousness of the claimed invention in light of the clear admission by the examiner that the teachings of Ramaswami are deficient alone. Therefore, the examiner continues to have the burden to establish the initial showing that the combination teaches the invention as recited in independent claim 11 or that the prior art as a whole would have fairly suggested the invention as recited in independent claim 11.

From our review of the teachings of Figueredo, we find neither embodiment in Figures 1 or 1A teaches or suggests the use of a manifold that is funnel-shaped in a silicon substrate. From our review of the teachings of Taub, we find Taub does disclose the precise manufacturing of a funnel-shaped ink slot so as to meet the capacity demands of higher frequency printing, but no teaching that would have suggested a modification of the teachings of Ramaswami and Figueredo. We further find that the examiner has provided individual motivations for each of the incremental additions to the base teachings of Ramaswami and Figueredo, but we find no overall problem or line of reasoning as to why it would have been obvious to one of ordinary skill in the art at the time of the invention to make all of these incremental modifications to the basic

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structure as taught by Ramaswami. Therefore, we find that the examiner has not established a *prima facie* case of obviousness of the invention as recited in independent claim 11. Therefore, we cannot sustain the rejection of independent claim 11 and in its dependent claims 12-20.

### CONCLUSION

To summarize, the decision of the examiner to reject claims 11-20 under 35 U.S.C. § 103 is reversed.

### REVERSED

  
KENNETH W. HAIRSTON  
Administrative Patent Judge

  
JOSEPH L. DIXON  
Administrative Patent Judge

  
ANITA PELLMAN GROSS  
Administrative Patent Judge

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Shaw Pittman LLP  
1650 Tysons Blvd.  
McLean, VA 22102